



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/680,724

10/07/2003

Gary Johnston

WEAT/0487

8287

36735 7590 01/29/2007
PATTERSON & SHERIDAN, L.L.P.
3040 POST OAK BOULEVARD, SUITE 1500
HOUSTON, TX 77056

EXAMINER

STEPHENSON, DANIEL P

ART UNIT

PAPER NUMBER

3672

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/680,724

Applicant(s)

JOHNSTON ET AL.

Examiner

Daniel P. Stephenson

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42, 45-62 and 65-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 42, 45-62 and 65-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s):

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application.
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 42, 45, 46, 49 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson '532 in view of Clark '630 and the pre-grant publication '704 to Jackson and Bergey. Simpson '532 (Figs. 2, 20 and 23) discloses an expander tool (304) for use in a wellbore. The expander tool has a body (102) having at least one recess (114) formed therein. There is an expansion assembly disposable in the at least one recess. The expansion assembly has a piston (120) that is outwardly extendable from the body in response to a radially outward force and a roller (116) rotationally disposed on a shaft. The roller and the shaft are constructed and arranged on the piston at an angle relative to the longitudinal axis of the expander tool. The recess that holds the piston is also at this angle, which is skewed from the longitudinal. It is inferred from the drawings that this angle is at least 10 degrees from the longitudinal axis and the centerline of the expander tool. There is a bearing body (118) adjacent to the roller on either end of the roller. The outer ends of the piston have a portion that is substantial enough to prevent the piston from tipping in the recess. The assembly has, at its ends, enough width to prevent tilting about an axis perpendicular to the longitudinal axis of the tool. Simpson '532 does not disclose that there is a bearing portion including a bearing portion between the rolling body and the piston that rotates with the roller. Nor does it disclose that the roller and shaft are constructed at an

Art Unit: 3672

angle relative to the longitudinal axis of the expander tool. Nor does it disclose that the roller is tapered.

Clark '630 (Fig. 1) discloses a thrust washer that is placed into a recess for the roller along with the roller. In using the roller the thrust washer will rotate with the roller. The roller and shaft are constructed at an angle relative to the longitudinal axis of the expander tool. The roller is also tapered. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the thrust washer and angle of Clark '630 with the apparatus of Simpson '532. This would be done to provide further wear protection as would be cost effective and lessen the need to replace rollers. In addition the angle would be used to allow for greater variation on the thrust placed on the expansion of the tubular.

Simpson '532 in view of Clark '630 shows all the limitations of the claimed invention, except, it does not disclose that the bearing member is mated to the roller to prevent relative rotation between the two, or that there is a cooling channel disposed between bearing members. Jackson '704 discloses a thrust-bearing washer that can be attached to one surface using pins before it rubs against another surface. The pins of the bearing go into holes on the piece that it is mating to. This is broadly read to be a "slot arrangement". The thrust washer has a cooling channel for the ingress of cooling/lubrication fluid. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the pins and bearing of Jackson '704 with the bearing of Simpson '532 in view of Clark '630. This would be done because it is common in the art of bearings to mate the bearing in relation to one surface if the bearing is in contact with another surface and to place a cooling channel between bearing surfaces.

Art Unit: 3672

Simpson '532 in view of Clark '630 and Jackson '704 shows all the limitations of the claimed invention, except, it does not disclose that there is a sleeve member disposed between the roller and the shaft. Bergey (Fig. 1) discloses a sleeve member (4) between the roller and the shaft of an expansion apparatus. It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the sleeve of Bergey between the roller and shaft of Simpson '532 in view of Clark '630 and Jackson '704. This would be done to prevent wear as it is common knowledge within the art that bearings should be placed between moving surfaces.

With regards to the limitation that the back bearing body be matable with the piston. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a separate bearing surface that is mated to the piston, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

3. Claims 50-57 and 59-62, 65 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson '532 in view of Clark '630 and the pre-grant publication '704 to Jackson. Simpson '532 (Figs. 2, 20 and 23) discloses an expander tool (304) for use in a wellbore. The expander tool has a body (102) having at least one recess (114) formed therein. There is an expansion assembly disposable in the at least one recess. The expansion assembly has a piston (120) that is outwardly extendable from the body in response to a radially outward force and a roller (116) rotationally disposed on a shaft. The roller and the shaft are constructed and arranged on the piston at an angle relative to the longitudinal axis of the expander tool. The recess that holds the piston is also at this angle, which is skewed from the longitudinal. It is inferred from the drawings that this angle is at least 10 degrees from the longitudinal axis and the

Art Unit: 3672

centerline of the expander tool. There is a bearing body (118) adjacent to the roller on either end of the roller. The outer ends of the piston have a portion that is substantial enough to prevent the piston from tipping in the recess. The assembly has, at its ends, enough width to prevent tilting about an axis perpendicular to the longitudinal axis of the tool. It is inferred from Fig. 4 that the length of the piston from front to back, and its proximity to the size of the opening it comes through substantially prevents tilting or tipping of the piston. Simpson '532 does not disclose that there is a bearing portion includes a bearing portion between the rolling body and the piston that rotates with the roller. Nor does it disclose that the roller and shaft are constructed at an angle relative to the longitudinal axis of the expander tool. Nor does in disclose that the roller is tapered.

Clark '630 (Fig. 1) discloses a thrust washer that is placed into a recess for the roller along with the roller. In using the roller the thrust washer will rotate with the roller. The roller and shaft are constructed at an angle relative to the longitudinal axis of the expander tool. The roller is also tapered. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the thrust washer and angle of Clark '630 with the apparatus of Simpson '532. This would be done to provide further wear protection as would be cost effective and lessen the need to replace rollers. In addition the angle would be used to allow for greater variation on the thrust placed on the expansion of the tubular.

Simpson '532 in view of Clark '630 shows all the limitations of the claimed invention, except, it does not disclose that the bearing member is matable to the roller to prevent relative rotation between the two, or that there is a cooling channel disposed between bearing members. Jackson '704 discloses a thrust-bearing washer that can be attached to one surface using pins

Art Unit: 3672

before it rubs against another surface. The pins of the bearing go into holes on the piece that it is mating to. This is broadly read to be a "slot arrangement". The thrust washer has a cooling channel for the ingress of cooling/lubrication fluid. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the pins and bearing of Jackson '704 with the bearing of Simpson '532 in view of Clark '630. This would be done because it is common in the art of bearings to mate the bearing in relation to one surface if the bearing is in contact with another surface and to place a cooling channel between bearing surfaces.

With regards to the limitation that the back bearing body be matable with the piston. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a separate bearing surface that is mated to the piston, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

4. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson '532 in view of Clark '630, Jackson '704 and Bergey as applied to claim 46 above, and further in view of the pre-grant publication '769 to Whang. Simpson '532 in view of Clark '630, Jackson '704 and Bergey shows all the limitations of the claimed invention, except, it does not disclose that there is a helical groove formed on the bearing body to provide for the ingress of fluid so that there is a fluid cushion between the stationary bearing body and the rotating bearing. Whang '769 discloses a thrust bearing with helical (58) grooves that allow the ingress of fluid so that there is a lubricating cushion between the thrust bearing and what it is next to. It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the

Art Unit: 3672

grooves of Whang '769 on the thrust bearing of Simpson '532 in view of Clark '630, Jackson '704 and Bergey. This would be done to preserve the thrust bearing as taught by Whang '769.

5. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson '532 in view of Clark '630 and Jackson '704 as applied to claim 50 above, in further view of the WIPO document '728 to Simpson et al. Simpson '532 in view of Clark '630 and Jackson '704 shows all the limitations of the claimed invention, except, it does not disclose that there is a plurality of rollers disposed on the shaft. WIPO '728 (Fig. 8 and page 19 line 31- page 20 line 2) discloses a roller in which there is a plurality of rollers (630) at different diameters and different rates of rotation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the separate rollers as disclosed in WIPO '728 in the apparatus of Simpson '532 in view of Clark '630 and Jackson '704. This would be done to prevent slipping as taught by WIPO '728.

Response to Arguments

6. Applicant's arguments filed 11/13/06 have been fully considered but they are not persuasive.

7. In response to applicant's argument that the Jackson reference is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the Jackson reference is directed toward the problem of washers, as it is titled "Thrust Washer". When someone would be looking for a thrust washer an inventor might come upon this document, thus, commending itself "to an

Art Unit: 3672

inventor's attention when considering his problem." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1447 (Fed. Cir. 1992).

8. In response to applicant's argument that the Bergey reference is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the tool of Bergey is considered to be within the field of the applicant's endeavor. It discloses an expansion tool for use below the surface of the earth, which is close to, if not identical, to the field of the applicant's endeavor.

9. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

10. It is the assertion of the applicant that the Simpson reference fails to teach a bearing with a stationary portion. The applicant respectfully traverses this assertion. It is put forth, by the applicant, that the bearing 118 of the Simpson reference is not a bearing but merely an integral part of the piston housing. The examiner notes that the reference discloses that 118 is a bearing and although it may be integral to the piston housing, there is nothing in the claims that prevents this from being the case.

Art Unit: 3672

11. It is the assertion of the applicant that the washer of Clark is not specifically disclosed as rotating with the roller. The examiner respectfully traverses this assertion. The bearing of Clark is disclosed as a "thrust washer". It is common for a thrust washer to rotate intermittently with the surface that is bearing against it. Therefore, the washer of Clark would, at times, rotate with the roller.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel P. Stephenson whose telephone number is (571) 272-7035. The examiner can normally be reached on 8:30 - 5:00 M-F.

Art Unit: 3672

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on (571) 272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


David Bagnell
Supervisory Patent Examiner
Art Unit 3672

DPS 9/17